Vascular and Cardiac Adult Stem Cell Therapy Center

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The mission of the Vascular and Cardiac Adult Stem Cell Therapy Center (VC-CAST) is the discovery and clinical translation of therapies involving transplantation of adult stem cells into patients with debilitating diseases. To accomplish this, VC-CAST fosters multidisciplinary research collaborations that address both biology of adult stem cells that are readily available, and the translation of their study from the laboratory into clinical trials. The use of such cells is highly feasible, and not ethically controversial, as they are derived from readily-available tissues such as fat and bone marrow. Since its inception, VC-CAST projects have been multidisciplinary, involving multiple clinical as well as basic departments of the School of Medicine. VC-CAST projects are also collaborative, with most of the projects having one or more industrial partners. A key partnership has also been established by the creation of the Veterans Affairs Center for Regenerative Medicine (VACRM) at the Roudebush VA Medical Center in Indianapolis, which will provide a unique referral site focusing on research and implementation of first-in-human trials in the fields of poor circulation, arthritis, wound healing, diabetes, and emphysema. Given the focus of VC-CAST researchers on translation, the center is active in pursuit of intellectual property that is critical to building corporate engagement and thus the enablement of translation to clinical trials. Signature center funding has allowed IUPUI investigators to try **high-risk, high-reward ideas**, which could not otherwise be funded readily, via either NIH or venture-capital methods. Most of these experiments are still ongoing, but have already led to **discoveries of potentially critical significance to patients.** The novelty of some of these discoveries promises to attract new funding, as well as to provide bases for potential **licensing revenues** and **startup opportunities**. This poster will highlight several of these projects, representative of center activities in their collaborative, multidisciplinary and translational and potentially commercializable aspects. Some key projects are as follows:

- Based on recent completion of the Phase I/II clinical trial, "Stem cell Angiogenesis to promote limb salVagE (SAVE), a new randomized Phase III clinical trial testing the use of one's own bone marrow-derived stem cells to save legs from amputation has been initiated, with Dr. Murphy as the national PI.
- Adipose Stem Cells for Peripheral Arterial Disease.
- Endometrial Regenerative Cells for Peripheral Arterial Disease.
- Adipose Stem Cells for treatment of Heart Attack and prevention of Heart Failure.
- Adipose Stem Cells for Emphysema and other Lung Diseases
- Adipose Stem Cells for Prevention and Treatment of Diabetes
- Isolation and Characterization of Endothelial and Mesenchymal Stem Cells from Term Human Placenta.
- Isolation and Characterization of Endothelial Colony Forming Cells (ECFCs) from Human Adult Blood Vessels